

REMARKS

Applicants' representative appreciates the courtesies extended during the telephonic interview of November 14, 2007. The amendments and remarks made herein are in accordance with those discussed during the telephonic interview.

The Final Office Action mailed September 11, 2007 considered claims 1-32. Claims 14-30 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. Claims 1, 2, 7, 12, 14, 15, 20, 25, and 27-32 were rejected under 35 U.S.C. 102(e) as being anticipated by Southam et al. (US 6,920,410) hereinafter *Southam*. Claims 3, 4, 6, 8, 9, 11, 16, 17, 19, 21, 22, and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Southam* in view of Trevithick et al. (US 2002/0116466) hereinafter *Trevithick*. Claims 5, 10, 18, and 23 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Southam*. Claims 13 and 26 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Southam* in view of Fremantle et al. (US 2004/0117199) hereinafter *Fremantle*.¹

By this amendment claims 1 and 14 have been amended.² Claims 31 and 32 have been cancelled. Accordingly, claims 1-26 and 28-30 are pending, of which claims 1 and 14 are the only independent claims at issue.

The present invention is generally directed to automatically generating code to simulate a message exchange between message exchange pattern applications. For example, claim 1 defines an act of accessing a message exchange pattern definition for a message exchange pattern. The message exchange pattern definition defines: a) which of a first message exchange pattern application and a second message exchange pattern application are to send which message at any given point in the message exchange pattern, b) a plurality of states of the message exchange pattern, c) one or more state transitions between the plurality of states. For each of the plurality of states, the message exchange pattern further definition defines: a) valid message types for the state, b) one or more valid messages types that may be transmitted when the message exchange pattern is in the state, c) one or more valid message types that may be

¹ Although the prior art status of the cited art is not being challenged at this time, Applicant reserves the right to challenge the prior art status of the cited art at any appropriate time, should it arise. Accordingly, any arguments and amendments made herein should not be construed as acquiescing to any prior art status of the cited art.

² Support for the amendments to the claims are found throughout the specification and previously presented claims, including but not limited to paragraphs [0028]-[0029], [0032]-[0034], [0051]-[0055], [0058] and Figures 2 -6.

received when the message exchange pattern is in the state, and d) an indication of which state transitions should occur given a certain valid message type.

Executable message exchange pattern simulation code is automatically generated, based on the message exchange pattern definition, for simulating the state transitions of the message exchange pattern. The generated executable message exchange pattern simulation code represents a stand alone computer program that can be executed at the test computing system to test the message exchange pattern definition without communicating with any message exchange pattern applications. For each plurality of states that permits valid messages to be transmitted, automatically generating executable code to a) simulate transmission of a valid message between the first message exchange pattern application and second message exchange pattern application and b) to simulate a corresponding state transition in response to the simulated transmission of the valid transmission message. For each of the plurality of states that permits valid messages to be received, automatically generating executable code to a) simulate reception of a valid message between the first message exchange pattern application and b) second message exchange pattern application and to simulate a corresponding state transition in response to the simulated reception of the valid message.

Claim 14 is a computer program product claim corresponding to claim 1.

Applicants respectfully submit that the cited art of record does not anticipate or otherwise render the amended claims unpatentable for at least the reason that the cited art does not disclose, suggest, or enable each and every element of these claims.

Southam describes a method and system for testing a testee network service in a substantially similar environment to the actual environment (Col. 1:59-62). *Southam* uses mock clients to send and receive transmissions. The mock clients are, in some embodiments, generated from web services description language (WSDL) information associated with the testing service (Col. 6, ll. 1-13). A user can specify one or more mock network service WSDL files using a mock network service WSDL template. The service files are then used as inputs in a test environment generation system that is configured to run tests using the inputs supplied by the user (Col. 5, l. 47-Col. 6, l.13).

As depicted in Figure 1, *Southam* uses a redirection service to re-direct requests to an actual network service to a mock network service. When a request is received, the redirection service refers to a database to substitute an address (URL) to a mock network service. (Col. 4.,

ll. 27 – 37). In cases, in which no substitute address is in the database, the request is forwarded to the intended destination address. (Col. 4, ll. 38-40). User input is required to maintain the database and to activate/deactivate redirection. (Col. 4., ll. 40-42 and Col. 5, ll. 57 – 63).

Users can use WSDL files to specify mock network services that are used as input to a test environment generation system. (Col. 5, ll. 38-56). Users can also manipulate a data entry mechanism to input data associated with the test environment. (Col. 5, ll. 57-59). Once all the data is entered, the user then manipulates the test environment simulation system to generate and configure the test environment. (Col. 5, ll. 65 -67). The test environment generation system is executed to instantiate or otherwise generate one or more mock clients, one or more mock network services, and the redirection service. (Col. 6., ll. 1-13). The configured clients, services, and redirector can then interact to test the testee network service. (Col. 7, ll. 28 – 44). Thus, although some components are mock components, actual messages are still exchanged between the testee service, the mock components, and the redirector.

Creating the test environment in *Southam* is further described in U.S. Pat. Ser. No. 10/449,555. Creation of a test environment includes the use of multiple user-generated mock WSDL files and significant further user data entry. ([0025] – [0027] of 10/449,555). Once the test environment is configured a testee network service can be tested.

Conversely, embodiments of the present invention test a message exchange pattern independent of any network services (mock or real). Further, executable code for simulating a message exchange pattern is automatically generated through reference to a message exchange pattern definition.

Accordingly, the cited art fails, to teach or suggest automatically generating executable message exchange pattern simulation code, based on the message exchange pattern definition, for simulating the state transitions of the message exchange pattern, the generated executable message exchange pattern simulation code representing a stand alone computer program that can be executed at a computer system to test the message exchange pattern definition without communicating with any message exchange pattern applications, as recited in claim 1. Further, the cited art fails to teach or suggest automatic code generation that includes automatically generating executable code to simulate a corresponding state transition in response to simulated reception or transmission of the valid message, as recited in claim 1. At least for either of these reasons, claim 1 patentably defines over the art of record. At least for either of these reasons,

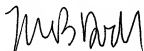
claims 14 also patentably define over the art of record. Since each of the dependent claims depend from one of claims 1 and 14, each of the dependent claims also patentably define over the art of record for at least either of the same reasons.

In view of the foregoing, Applicant respectfully submits that the other rejections to the claims are now moot and do not, therefore, need to be addressed individually at this time. It will be appreciated, however, that this should not be construed as Applicant acquiescing to any of the purported teachings or assertions made in the last action regarding the cited art or the pending application, including any official notice. Instead, Applicant reserves the right to challenge any of the purported teachings or assertions made in the last action at any appropriate time in the future, should the need arise. Furthermore, to the extent that the Examiner has relied on any Official Notice, explicitly or implicitly, Applicant specifically requests that the Examiner provide references supporting the teachings officially noticed, as well as the required motivation or suggestion to combine the relied upon notice with the other art of record.

In the event that the Examiner finds remaining impediment to a prompt allowance of this application that may be clarified through a telephone interview, the Examiner is requested to contact the undersigned attorney at 801-533-9800.

Dated this 11th day of December, 2007.

Respectfully submitted,



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